

One New Species of Collembola (Insecta) from Sand Dunes of Korea

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ABSTRACT

We carried out the study on interstitial Collembola from South Korean sand dunes. One new species and two new records for Korea were found. They are *Friesea leei* n. sp. of Neanuridae, and *Proisotoma minuta* Folsom, 1937 and *Folsomides parvulus* Stach, 1922 of Isotomidae. Also *Archisotoma* sp. was collected.

Key words: Collembola, Insecta, taxonomy, littoral sand, Korea

INTRODUCTION

Within the category of our study on interstitial Collembola populations we carried out a field work of several littoral and riverside sand dunes in South Korea. Mesofaunal specimens were taken from surface water with the bucket where sand was sunk down and Collembola were picked up and sorted under the stereomicroscope.

DESCRIPTIONS

I. Neanuridae

1. *Friesea leei* n. sp.

Body length up to 0.7 mm. Body color dark violet in alcohol. Ventral side paler than other parts of body. Antenna shorter than head diagonal. Antenna:head ratio as 1:1.2. Antenna segments distinctly separated, I:II:III:IV length ratio as 1:2:3:4. Antenna IV segment with a simple apical bulb (Fig. 1A)

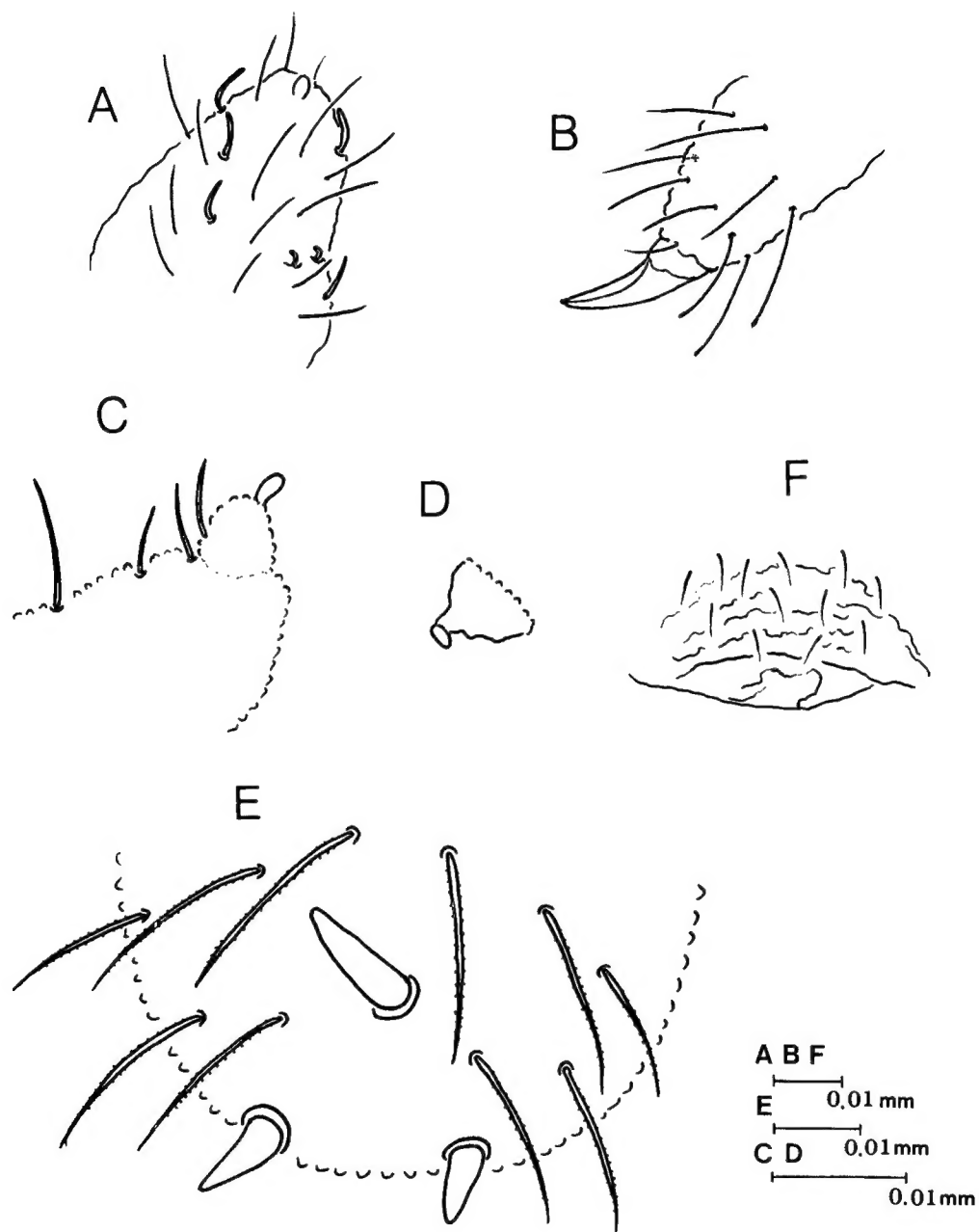


Fig. 1. *Friesea leei* n. sp.: A, antennal IV segment and third antennal organ; B, hind claw; C, mucrodens; D, rami; E, setae and anal spine arrangements in abdomen VI tergite; F, genital plate (♀).

and 6 curved sensory setae, 1 small dorso-external sensilla, and 1 subapical sensorial organite. Third antennal organ typical with 2 short rods (Fig. 1A), each in a groove, 2 sensilla "guard setae" large and 1 sensory setae spiniform in ventral side. Eyes 8 + 8, with an eye patch. Postantennal organ absent. Mandible and maxilla typical. Legs short. Unguis moderately curved and untoothed (Fig. 1B). Unguiculus absent. Tibiotarsus I, II, III with respectively 2/2, 3, little capitate tenent hairs. Ventral

tube with 4 + 4 setae, 2 distal and 2 proximal. Furca very reduced: dens with 2 setae; very small mucron (Fig. 1C). Rami unidentate, but very faintly formed and without seta (Fig. 1D). Abdomen VI rounded, distally presenting some setae of the segment, with 3 anal spines, one of them located anteriorly, the others posteriorly (Fig. 1E). Female genital plate with 12 setae (Fig. 1F). Integument finely and equally granulate all over body.

Type data. Holotype. ♀, from river sand dune at Ch'ongdo (40 km S.E. from Taegu), Kyongsangnamdo Province, leg. J.-M. Thibaud, 28 Sep. 1992. 2 paratypes, same data as holotype.

Remarks. This species resembles *F. magnicornis* Denis, 1931 (Costa Rica, Mexico, Petits Antilles) by having 3 anal spines, 8+8 ocelli, claws without tooth, one furca of type 2 (reduced dens, with 2 setae and reduced mucron, but still present and separated from the dens) and capitate tenent hairs on tibiotarsus. But they differ in the abdominal setae V and VI with pointed apex. It is closely related also to *F. normae* Weiner and Najt, 1985 (North Korea), from which it is differentiated by the length of sensory setae of the antenna IV segment, by the number of capitate setae at tibiotarsus and by the form of mucron and retinaculum. It is close also to *F. tibiotarsalis* Deharveng and Bedos, 1991 (Thailand), from which it is different by the number of capitate tenent hairs at tibiotarsus and by the absence of capitate setae on abdominal tergites IV to VI.

Etymology. The present species is cordially dedicated to Prof. Byung-Hoon Lee of Chonbuk National University.

II. Isotomidae

2. *Archisotoma* sp.

Material examined. 13 specimens from beach of Daech'on, Ch'ungch'ongnamdo Prov., 26 Sep. 1975. leg. Cl. Delamare and B.-H. Lee.

Remarks. Our specimens, in a bad state of preservation, resemble *A. subbrucei* Delamare, 1953, from the coast of the North Sea and the Atlantic.

3. *Folsomides parvulus* Stach, 1922

Folsomides parvulus Stach, 1922, p. 17, pl. II, figs. 1-4; Gisin, 1960, p. 188, figs. 40 and 348.

Folsomides parvus Folsom, 1937, p. 14, figs. 16-20.

Proisotoma (*Folsomides*) *parvula* Gisin, 1943, p. 160.

Material examined. Collected from Kumgang River near the Puyo of Ch'ungch'ongnamdo Province, leg. J.-M. Thibaud, 1 Oct. 1992. 2 ex.

Distribution. Cosmopolitan. New record for Korea

4. *Proisotoma minuta* (Tullberg, 1871)

Isotoma minuta Tullberg, 1871, p. 152; Schille, 1912, p. 8.

Isotoma pallida Moniez, 1894 p. 354.

Isotoma stagnalis Willem, 1900 p. 28.

Isotoma tenebricola Willem, 1900 p. 28.

Isotoma clavipila Axelson, 1903 p. 7.

Proisotoma minuta Bagnall, 1910, p. 501; Stach, 1922, p. 116, Pl. X, 17-a, 18-21; Lindroth, 1931, p. 129 (cited from Salmon, 1964, p. 355); Folsom, 1937, p. 51, Pl. 19, figs. 198-207.

Proisotoma subminuta Denis, 1931, p. 112, figs. 89-93.

Material examined. Collected from sand dunes of Kumgang River at Puyo, Ch'ungch'ongnamdo Province, 1 Oct. 1992. leg. J.-M. Thibaud, 6 ex.

Remarks. Our specimens agree very well with Folsom's description (Folsom, 1937) in all the characters observed, except for antenna IV segment having 2 sensory setae which, however, are not revealed in his description.

Distribution. Holarctic and Japan. New record for Korea

DISCUSSION

The present study deals with four interstitial Collembola species, which comprises the first report of the insect belonging to Neanuridae and Isotomidae from Korea.

From Asian region Collembola from sand was known only from Japan (Uchida and Tamura, 1966; Yosii, 1977) and recently from Korea (Thibaud and Lee, 1994; Lee and Kim, 1994). Further studies are certainly needed to be done to get a general picture of their distributional as well as phylogenetic pattern. The four species of the present study are all closely allied to Asiatic fauna so far available for comparison.

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한국산 砂丘性 톡토기(곤충강) 1新種에 관하여

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적 요

한국의 조간대와 砂丘에 서식하는 톡토기중 흑무늬톡토기科(Neanuridae)와 마디톡토기과(Isotomidae)에 대한 분류학적 연구결과 1 신종 *Friesea leei* n. sp. 와 2 한국미기록종 *Proisotoma minuta* Folsom, 1937 및 *Folsomides parvulus* Stach, 1922이 관찰되었기에 이를 보고한다. 이밖에 *Archisotoma* sp.도 채집되었다.